

52

Date: Monday, 12/17/2007 1:09:57 PM
 User: Kim Johnston

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : 407 HIGH AFT X-TUBE ASSEMBLY
 Job Number : 36383
 Estimate Number : 10528
 P.O. Number :
 This Issue : 12/17/2007 S.O. No. :
 Prsht Rev. : NC Part Number : D407667205
 First Issue : / / Type : LANDING GEAR Drawing Number : D407-667-245 REV D
 Previous Run : 35713 Drawing Revision : D
 Material :
 Due Date : 12/24/2007 Qty: 1 Um: Each
 Written By :
 Checked & Approved By :
 Comment : Est Rev: C 05.09.02 Add holes for compatibility with Bell
 Skidtubes KJ/JLM
 Est Rev: D Added Magnobond, Rubber Cushion & Clamps
 07-02-19 JLM
 ****CHANGE TO CHG 005 - IF USING D2894-1 B35578 OR
 GREATER****

Additional Product

Job Number:



Seq. #: Machine Or Operation: Description :

1.0 DC DOCUMENT CONTROL



Comment: DOCUMENT CONTROL

Photocopy bluefile and create labels as per PPP D407-667-205CHG004

07.12.19

2.0 D6011115 Crosstube Material



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part number Description Batch

1 D6011-1,15 Crosstube B-34689

Check OD = 2.750"; ID = 1.450"

BC 08.01.10 (U)

3.0 MORI SEIKI MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

1-Fill tube with sand & install plugs DT8531 on both ends as per Folio FA248

2-Turn first side as per Folio FA248

3-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D407-667-245.

J.F./BC

08.01.10 (U)

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 12/17/2007 1:09:57 PM
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Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 407 HIGH AFT X-TUBE ASSEMBLY

Job Number: 36383

Part Number: D407667205

Job Number:



Seq. #:

Machine Or Operation:

Description :

4.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

BC 08-01-10

①

5.0

MORI SEIKI

MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

1-Turn second side as per Folio FA248

2-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D407-667-245

3-Remove sand and plugs

4-Scribe part # and batch # using vibrating stylus as per Dwg D407-667-245

Inside of Cuff(Donot engrave on outside of tube)

BC 08-01-10

①

6.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

BC 08-01-10

①

7.0

QC8

SECOND CHECK



Comment: SECOND CHECK

BC 08-01-10

①

8.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



AWM 08-01-14



Comment: LANDING GEAR RESOURCE 1

1-Polish entire outside surface of crosstube

9.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

DP 8-1-14

10.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

Ensure no sand is in the tube before alodine.

AWM 08-01-14

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Drawing Name: 407 HIGH AFT X-TUBE ASSEMBLY

Job Number: 36383

Part Number: D407667205

Job Number:



Seq. #:

Machine Or Operation:

Description:

11.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Bend tube as per Dwg D407-667-245 using CNC bender program 407 Aft and Folio FT

EL 8-1-15

12.0

QC6

DIMENSIONAL CHECK



Comment: DIMENSIONAL CHECK

08-01-16 (1)

13.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1

1-Drill pilot holes in tube using drill Jig DT8583 & DT8584 as per Dwg D407-667-245. Drill all (3) top holes.

P70

2-Drill and Ream all holes in tube to finish size using drill Jig DT8583 & DT8584 as per Dwg D407-667-245. Check dimensions between holes on all four sides.

3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.

4-Drill pilot holes using drill Jig DT8583 & DT8584 as per Dwg D407-667-245. Drill only the top (2) holes.

5-Drill & ream the top (2) holes to finish size using drill Jig DT8583 & DT8584 as per Dwg D407-667-245

6-Drill Aft rivet holes using drill Jig DT8789 as per Dwg D407-667-245. Note: Aft side has 3x top holes.

7-Drill Fwd rivet holes using drill Jig DT8789 as per Dwg D407-667-245. Drill only the top (3) holes.

8-C'sink holes as per Dwg D407-667-245. Allow rivet to sit below surface to compensate for paint.

9-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D407-667-245

AWM 08-01-17

14.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



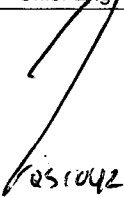

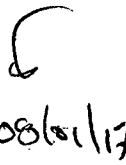
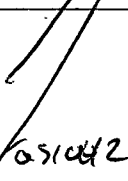
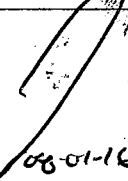
Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005.4.1

AWM 08-01-17

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D407-667-205 PAR #: SHA Fault Category: Prod / Landing Gear NCR: Yes No DQA: LD Date: 08/02/21
 QA: N/C Closed: LD Date: 08.02.21

NCR: 36383		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
08-01-16	13.1	Tube is slightly un-even Side 'A' is lower than 'B'	 05/04/21	Drill side 'A' only - @ 0.660"	 3-1-17	 08/01/17	 05/04/21	 08-01-16

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Process Sheet

Customer: CU-DAR001, Dart Helicopters Services

Drawing Name: 407 HIGH AFT X-TUBE ASSEMBLY

Job Number: 36383

Part Number: D407667205

Job Number:



Seq. #:

Machine Or Operation:

Description:

15.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

08/01/18 (1)

16.0

QC5

INSPECT WORK TO CURRENT STEP



Check holes
08/01/18



Comment: INSPECT WORK TO CURRENT STEP

08/01/18 (1)

17.0

OUTSIDE SERVICE

OUTSIDE SERVICES



Comment: Sub-Contracting OUTSIDE SERVICES

Liquid Penetrant Inspection as per QSI 038Or

Issue P/O: 5502 LPI as per ASTM 1417

Level 2 Attach copy of NDT results to work order

08/01/21 (1)

18.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Inspect for transit damage

Ensure copy of NDT results attached to work order.

08/01/21 (1)

19.0

QC6

DIMENSIONAL CHECK



Comment: Inspect for damage & ensure results are as per Dwg D407-667-245

08/01/21 (1)

20.0

SPRAY PAINTING

SPRAY PAINTING



Comment: SPRAY PAINTING

1-Prime inside and outside crosstube as per QSI 005 4.2

2-Paint outside crosstube with White Imron as per QSI 005 4.2

RT 08-01-23

21.0

QC14

INSPECT SPRAY PAINT



Comment: Inspect Spray Paint

Wrap in plastic bag to protect from scratches

08/01/24 (1)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 407 HIGH AFT X-TUBE ASSEMBLY

Job Number: 36383

Part Number: D407667205

Job Number:



Seq. #:

Machine Or Operation:

Description :

22.0

D2856400

Abrasion Strip



Comment: Qty.: 1.3524 f(s)/Unit Total : 1.3524 f(s)

Pick:

Qty Part number Description Batch

2 D2856-400(Cut to 7.73") Abrasion Strip 35900

2T 08-02-14

23.0

D2873043

Nut Plate Assembly



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty Part number Description Batch

2 D2873-043 Nut Plate 36064

2T 08-02-15

24.0

D2873045

Nut Plate Assembly



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty Part number Description Batch

2 D2873-045 Nut Plate 34077

2T 08-02-15

25.0

D28941

2.750 Support



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part number Description Batch

1 D2894-1 Support 19163

2T 08-02-04

26.0

D31901

Chafing Shield



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty Part number Description Batch

2 D3190-1 Chafing Shield 33427

2T 08-02-14

27.0

D3595

Rubber Cushion (per sq ft)



Comment: Qty.: 0.0246 sf(s)/Unit Total : 0.0246 sf(s)

Rubber Cushion

2X .750" X 4.30"

Batch: 35126

Box - 570's - 430's

2T 08-02-04

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

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Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 407 HIGH AFT X-TUBE ASSEMBLY

Job Number: 36383

Part Number: D407667205

Job Number:



Seq. #:

Machine Or Operation:

Description :

28.0

MS20601AD4W8

RIVET



Comment: Qty.: 14.0000 Each(s)/Unit Total : 14.0000 Each(s)

Pick:

Qty Part number Description Batch

14 MS20601AD4W8 Rivet

1070085/1050579

RT 08-02-14

29.0

MS2192022

Clamp(per MIL-DTL-8783C)



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Pick:

Qty Part number Description Batch

4 MS21920-22

Clamp

106627

RT 08-02-14

30.0

MS2192025

Clamp(per MIL-DTL-8783C)



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Clamp(per MIL-DTL-8783C)

Batch: 106398

RT 08-02-04

31.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Install abrasion strips as per QSI 035 using DT8674. Install chafing shield as per Dwg D407-667-245. Note: (3) top holes should be facing up.

2-Install support with magnobond and install clamps as per Dwg D407-667-245. Torque clamps to 80-100 in lb

A/R Magnobond

Batch:

106695

RT 08-02-04

3-Install nut plates as per Dwg D407-667-245. Touch-up rivet heads with Imron paint.

RT 08-02-14

32.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

2 08/02/15 (H)

33.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Pick Packing Kit

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 12/17/2007 1:09:57 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 407 HIGH AFT X-TUBE ASSEMBLY

Job Number: 36383

Part Number: D407667205

Job Number:



Seq. #:

Machine Or Operation:

Description :

34.0

AN534A

Bolt



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)
Bolt
Batch: M104679 SP

35.0

MS21042L5

Nut



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)
Nut
Batch: M105940 SP

36.0

AN510A

Bolt



Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)
Pick:Packing Kit
Qty Part number Description Batch
10 AN5-10A Bolt M106519 SP

37.0

AN532A

Bolt



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)
Pick:Packing Kit
Qty Part number Description Batch
4 AN5-32A Bolt M105408 SP

38.0

AN960JD516

Washer



Comment: Qty.: 18.0000 Each(s)/Unit Total : 18.0000 Each(s)
Pick:Packing Kit
Qty Part number Description Batch
18 AN960JD516 Washer M106167 8/2/05 SP (1A)

39.0

QC4

INSPECT 100% KITS FOR COMPLETENESS



Comment: INSPECT 100% KITS FOR COMPLETENESS

40.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D407-667-205

Location:

PPP Rev: Rev D 12/14/03 @

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 12/17/2007 1:09:57 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 407 HIGH AFT X-TUBE ASSEMBLY

Job Number: 36383

Part Number: D407667205

Job Number:



Seq. #:

Machine Or Operation:

Description :

41.0

QC21

FINAL INSPECTION/W/O RELEASE



08.02.20
AJ

Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



08.02.20

DART		TEL: 1-613-632-3336 FAX: 1-613-632-4443	
TRANSPORT CANADA APPROVAL 0-09-89			
P/N	D407-667-205	CHG	CHG005
DESC	Crosstube Aft High	SIC	SH01-5
LOT	B36383	SIC	SR01304NY
MODEL	Bell 407	SIC	
MADE IN CANADA			

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	36383
Description: Crosstube Assembly	Part Number:	D407-667-245
Inspection Dwg: D407-667-245 Rev: D		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

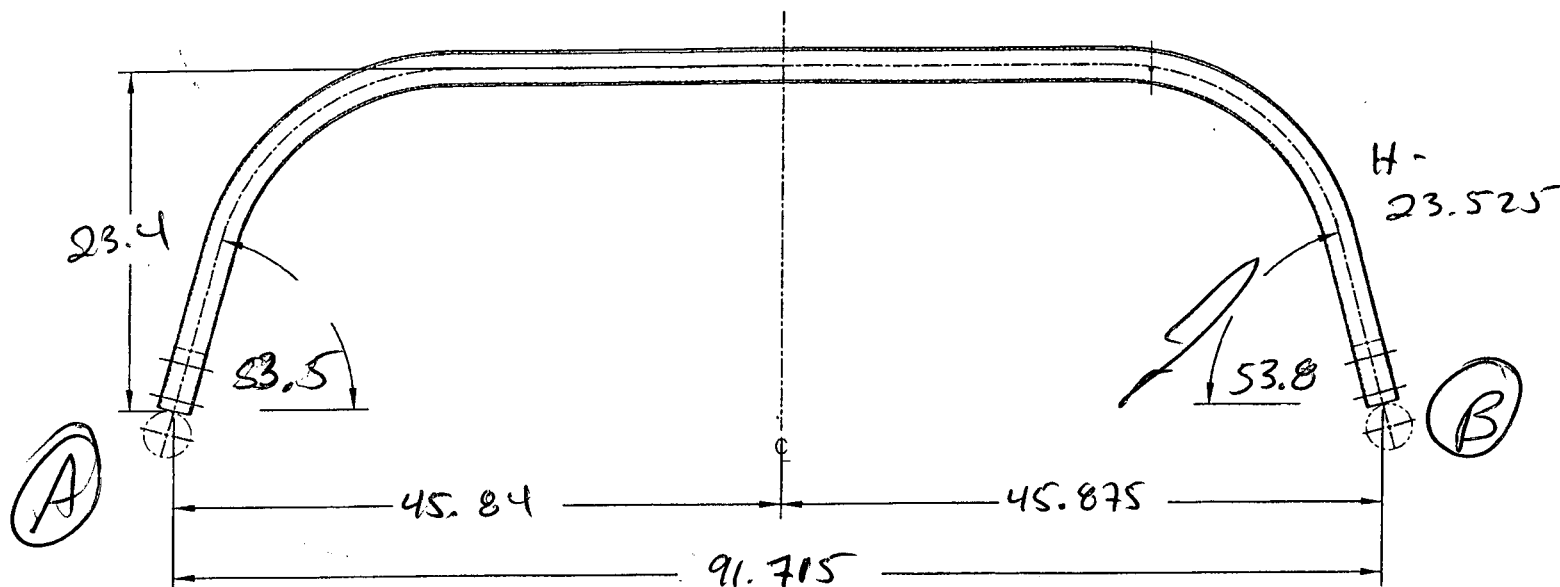
Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.490	+0.005/-0.000	2.493"	✓		
	1.832	+0.005/-0.000	1.836	✓		
	1.838	+0.005/-0.000	1.843	✓		
	1.892	+0.005/-0.000	1.896	✓		
	2.052	+0.005/-0.000	2.056	✓		
	2.206	+0.005/-0.000	2.209	✓		
	2.521	+0.005/-0.000	2.525	✓		
	2.633	+0.005/-0.000	2.636	✓		
	4.10	+/-0.030	4.130"	✓		
	4.978	+/-0.030	4.985	✓		
	2.040	+0.000/-0.010	2.037"	✓		
	0.125	+/-0.010	.135"	✓		
	R0.063	+/-0.010	R0.063"	✓		
	R0.500	+/-0.010	R0.500"	✓		
SIDE B	2.490	+0.005/-0.000	2.493"	✓		
	1.832	+0.005/-0.000	1.837"	✓		
	1.838	+0.005/-0.000	1.843"	✓		
	1.892	+0.005/-0.000	1.897"	✓		
	2.052	+0.005/-0.000	2.056"	✓		
	2.206	+0.005/-0.000	2.209"	✓		
	2.521	+0.005/-0.000	2.521"	✓		
	2.633	+0.005/-0.000	2.633"	✓		
	4.10	+/-0.030	4.130"	✓		
	4.978	+/-0.030	4.996"	✓		
	2.040	+0.000/-0.010	2.035"	✓		
	0.125	+/-0.010	.135"	✓		
	R0.063	+/-0.010	R0.063"	✓		
	R0.500	+/-0.010	R0.500"	✓		
	112.91	+/-0.020	112.930"	✓		

Measured by: J.F./Be	Audited by: [Signature]	Prototype Approval:	N/A
Date: 07.01.10	Date: 08/01/10	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	04.04.21	New Issue (P/O D407-667-205)	KJ/RF	
B	06.03.09	Dwg Rev updated	KJ/JLM	
C	06.03.30	Tolerance revised for 4.978 dimension	KJ/JLM	
D	07.02.19	Dwg Rev updated	KJ/JLM [Signature]	[Signature]

DART AEROSPACE LTD		Work Order:	36383
Description: Crosstube High Aft (407)		Part Number:	D407-667-205
Inspection Dwg: D407-667-245 Rev: D		Page 1 of 1	

Required Dimension	Min	Max
Height	23.46	23.58
1/2 Span	45.86	45.98
Angle	54	56
Total Span	91.72	91.96



Comments
Side 'A' is lower than 'B'. Drill
Side 'A' 20.66" NOT side 'B'

QC15 Inspection	
Date	28-01-16

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	

DART

DESIGN PH	DRAWN BY PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED H	APPROVED H	DRAWING NO. D407-667-245	REV. D SHEET 1 OF 3
DATE 07.02.07		TITLE CROSSTUBE ASS'Y (407 HIGH AFT)	SCALE NTS
A	02.05.13	NEW ISSUE	
B	03.05.21	ADD CHAFING SHIELD	
C	05.07.26	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	
D	07.02.07	ADD VIEW FOR OEM SKID HOLES, ROTATE ORIENTATION OF CLAMPS SECTION F-F, REMOVE -851 ABRASION STRIP, ADD MAGNOBOND 6398, ADD CUSHION	

RELEASED

07.02.04

Qty	Part Number	Description
X	D407-667-245	CROSSTUBE ASSEMBLY (407 HIGH AFT)
1	D6011-115	CROSSTUBE
2	D2856-400-773	ABRASION STRIP
2	D2873-043	NUT PLATE
2	D2873-045	NUT PLATE
1	D2894-1	SUPPORT
2	D3190-1	CHAFING SHIELD
2	D3595-075-430	RUBBER CUSHION
14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
4	MS21920-22	CLAMP
2	MS21920-25	CLAMP (OR MS21920-24)

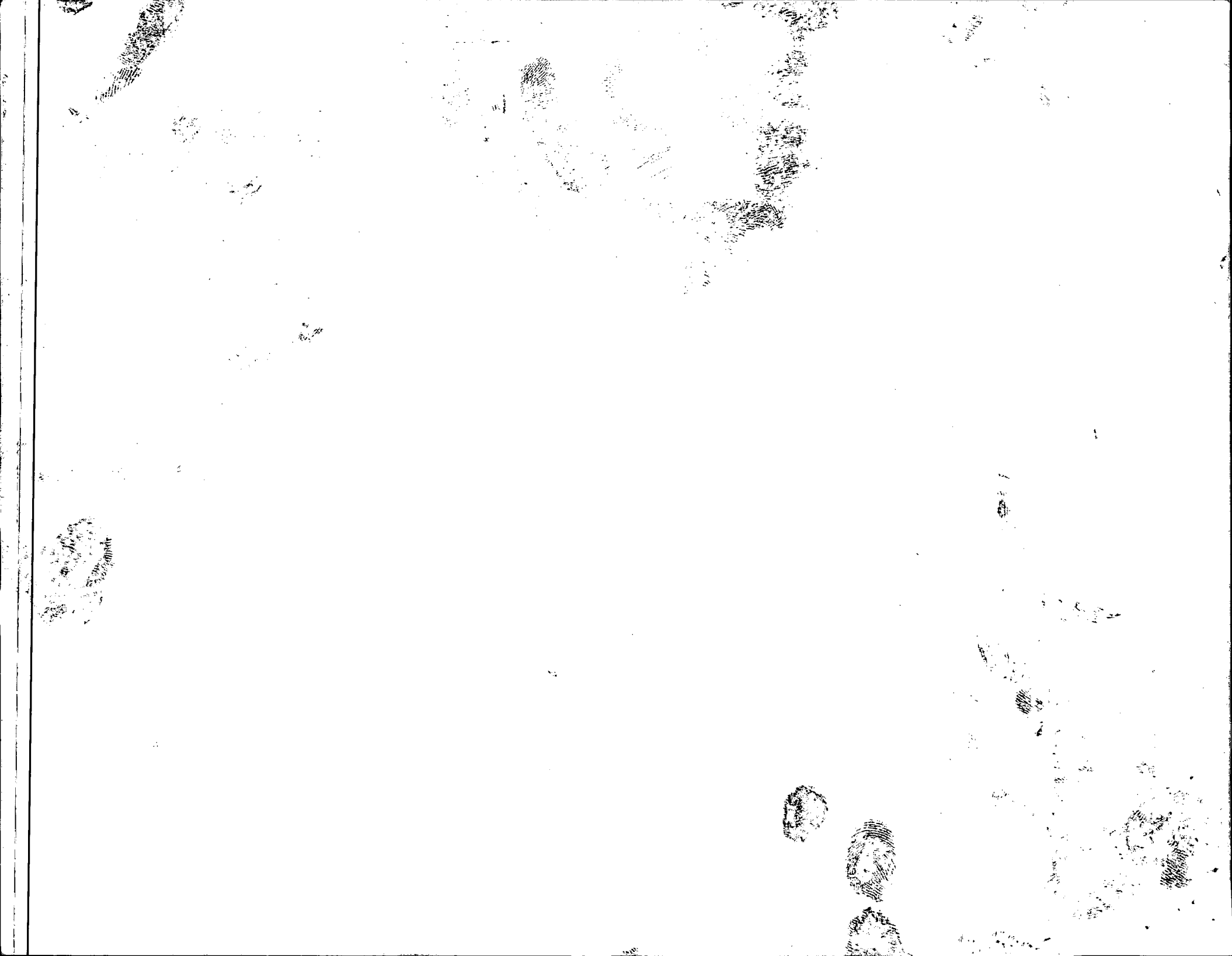
GENERAL NOTES:

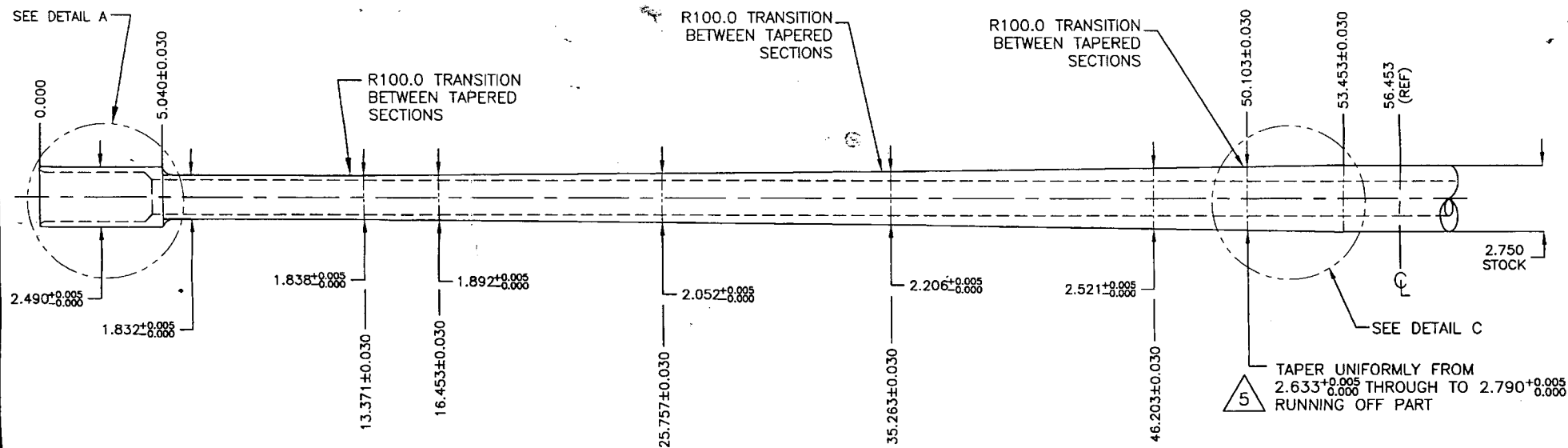
- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 2) MATERIAL: MANUFACTURED FROM D6011-115
FINISHED LENGTH = 112.91±0.020
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE.
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 6) BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2856-400-773 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE, PER QSI 035.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) INSTALL D2894-1 CENTER SUPPORT USING A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 12) INSTALL MS21920-25 CLAMPS WITH D3595-075-430 RUBBER CUSHIONS TO SECURE D2894-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE CROSSTUBE SUPPORT.
NOTE: MS21920-24 CLAMPS CAN BE USED TO ACCOMMODATE VARYING DIAMETERS. ENSURE THERE IS A MINIMUM OF 1.5 THREADS IN SAFETY ON THE NUTS.
- 13) TORQUE CLAMPS 80 TO 100 IN-LB.
- 14) INSTALL D3190-1 CHAFING SHIELDS SO THAT OVERLAP IS ON BOTTOM SIDE OF CROSSTUBE OPPOSITE D2894-1 SUPPORT.

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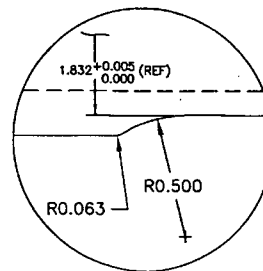
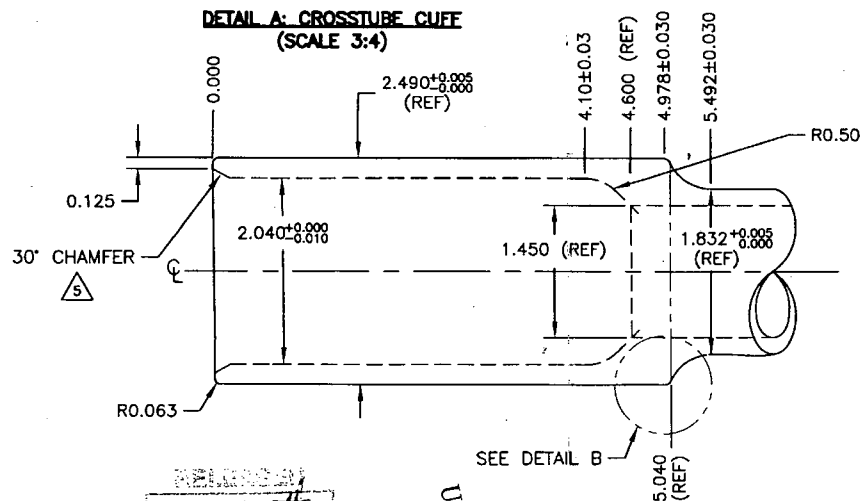
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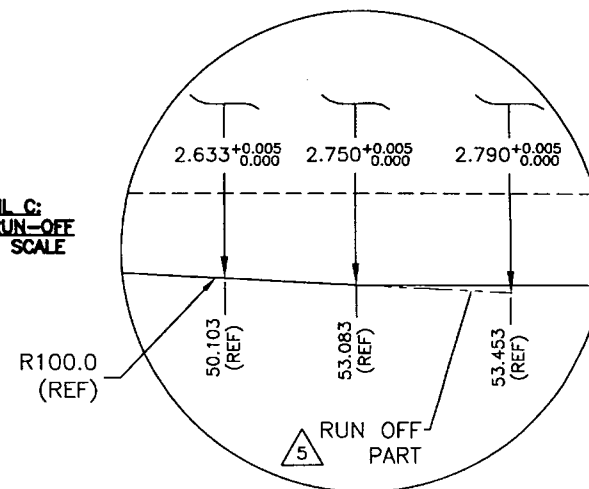
D407-667-245 MACHINING DETAIL

DETAIL A: CROSSTUBE CUFF
(SCALE 3:4)



DETAIL B: CUFF
TRANSITION
SCALE 2:1

DETAIL C:
TAPER RUN-OFF
NOT TO SCALE



07.02.14

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DESIGN PH

DRAWN BY PH

CHECKED PH

APPROVED PH

DATE 07.02.07

DART

DART AEROSPACE LTD.
HAMPSHIRE, ONTARIO, CANADA

DRAWING NO.

D407-667-245

TITLE

CROSSTUBE ASS'Y (407 HIGH AFT)

REV. D

SHEET 3 OF 3

SCALE

1:4



LIQUID PENETRANT TEST REPORT

P- 09828

PAGE 1 OF 1

CLIENT Dart Aerospace DATE 18 Jan 2008 TIME AM ☐ PM ☐

ATTENTION Linda Lacelle ACUREN JOB NO. 188-8-1209

ADDRESS 1270 Aberdeen st POMVO No. _____

Hawkesbury Ont. WORK LOCATION Hawkesbury

PROJECT 402-High AFT x-Tube Assembly, 206 LAFT X-TUBE High AFT X-TUBE 412 ACCEPTANCE STD. ASTM 1417/251-3 REV./DATE 2005

ITEM(S) EXAMINED Sols # 36383, 36384, 36385, 36386, 36379, 36381, 33541

JOB DESCRIPTION _____ PROCEDURE NO. LT-XXXX REV./DATE _____ TECHNIQUE NO. LT-XXXX-XXX REV./DATE _____

PART NO. D407667205 D206667203 D412664203 MATERIAL ALODYNE ALUMINUM THICKNESS _____

SCOPE WET FLOURESCENT LIQUID PENETRANT INSPECTION CARRIED OUT ON 100% OF EXTERNAL SURFACE

TEST DETAILS

METHOD ☒ FLUORESCENT ☐ VISIBLE ☐ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED

FAMILY BRAND MAGNAFLUX BLACK LIGHT S/N D178 ☐ OUTPUT > 1000 μ W/cm² ☒ AMBIENT < 2 fc

PENETRANT 2LC7 MINIMUM DWELL TIME 45 MIN. LIGHTING EQUIP. ☒ FLASHLIGHT ☐ TROUBLELIGHT ☒ OUTPUT > 100 fc @ SURFACE

PENETRANT REMOVER H2O MINIMUM DRY TIME >10 MIN. OTHER _____

DEVELOPER SK052 MINIMUM DWELL TIME 10 MIN. LIGHT METER S/N _____ CAL DUE DATE MAR 08

DEVELOPER TYPE ☒ NON AQUEOUS ☐ AQUEOUS ☐ DRY

TEST SURFACE

SURFACE CONDITION ☒ AS GROUND ☐ AS WELDED ☐ MACHINED ☐ SHOT BLASTED ☐ CLEAN BARE METAL

SURFACE TEMPERATURE ☐ < -4°C/20°F ☐ -4°C/20°F TO 10°C/50°F ☒ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F

RESULTS- (☐ METRIC ☐ IMPERIAL)

ITEM	COMMENTS	ACCEPT	REJECT
36383	ACCEPTABLE		
36384	ACCEPTABLE		
36385	ACCEPTABLE		
36386	ACCEPTABLE		
36379	ACCEPTABLE		
36381	ACCEPTABLE		
33541	ACCEPTABLE		

Scope of Services

The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care

In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES

CLIENT REPRESENTATIVE _____ SIGNATURE _____ DTR # _____

TECHNICIAN (SIGNATURE): Frederick Chagnon SIGNATURE _____ REPORT REVIEWED BY: _____

NAME (PRINT): Frederick Chagnon 1st TECHNICIAN 2nd TECHNICIAN _____

CGSB LEVEL II SNT LEVEL _____ CGSB LEVEL _____ SNT LEVEL _____

CGSB REG. No 10560 CGSB REG. No _____